ENVIRONMENTAL QUALITY

CHAPTER 56

UNDERGROUND STORAGE TANKS
PETROLEUM AND CHEMICAL SUBSTANCES

Sub-Chapter 2

UST Systems: Design, Construction and Installation

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Design, Construction and Installation

17.56.201 PERFORMANCE STANDARDS FOR NEW UST SYSTEMS

(1) In order to prevent releases due to structural failure, corrosion, or spills and overfills for as long as the UST system is used to store regulated substances, all owners and operators of new UST systems must meet the following requirements:

(a) Each tank must be properly designed and constructed, and any portion underground that routinely contains product must be protected from corrosion, in accordance with any one of the codes of practice developed by a nationally recognized association or independent testing laboratory adopted by reference in (1)(a)(i) through (iii):

(i) the tank is constructed of fiberglass-reinforced plastic in accordance with any one of the standards adopted by reference in (1)(f); or

(ii) the tank is constructed of steel and cathodically protected in the following manner and in accordance with any one of the standards adopted by reference in (1)(g):

(A) the tank is coated with a suitable dielectric material;

(B) field-installed cathodic protection systems are designed by a corrosion expert;

(C) impressed current systems are designed to allow determination of current operating status as required in ARM 17.56.302(3); and

(D) cathodic protection systems are operated and maintained in accordance with ARM 17.56.302; or

(iii) the tank is constructed of a steel-fiberglass-reinforced-plastic composite in accordance with the standards adopted by reference in (1)(j)(i) and (ii).

(b) The piping that may contain regulated substances, including vent lines and fill lines, and is in contact with the ground, must be properly designed, constructed, and protected from corrosion in accordance with any one of the codes of practice developed by a nationally recognized association or independent testing laboratory adopted by reference in (1)(b)(i) and (ii):

(i) the piping is constructed of fiberglass-reinforced plastic in accordance with all of the standards adopted by reference in (1)(i); or

(ii) the piping is constructed of steel and cathodically protected in the following manner and in accordance with all of the standards adopted by reference in (1)(j):

(A) the piping is coated with a suitable dielectric material;

(B) field-installed cathodic protection systems are designed by a corrosion expert;

(C) impressed current systems are designed to allow determination of current operating status as required in ARM 17.56.302(3); and

(D) cathodic protection systems are operated and maintained in accordance with ARM 17.56.302.

(c) To prevent spilling and overfilling associated with product transfer to the UST system, owners and operators must use the following spill and overfill prevention equipment:

(i) spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and

(ii) overfill prevention equipment that will:

(A) automatically shut off flow into the tank when the tank is no more than 95% full; or

(B) alert the transfer operator when the tank is no more than 90% full by restricting the flow into the tank or triggering a high-level alarm.

(d) All tanks and piping must be properly installed in accordance with this chapter, the manufacturer's instructions or specifications, all permit conditions, and all applicable standards adopted by reference in (1)(k).

(e) Upon completion of all work and testing performed pursuant to a permit issued under subchapter 13 for the installation or modification of an underground storage tank system, the licensed installer or department inspector must certify, on a form approved by the department, compliance with the following requirements:

(i) installation or modification in accordance with (1)(d);

(ii) corrosion protection of steel tanks and piping under (1)(a) and (b);

(iii) release detection under ARM 17.56.402 and 17.56.403; and

(iv) spill and overfill protection under ARM 17.56.301.

(f) The department hereby adopts and incorporates by reference:

(i) Underwriters Laboratories Standard 1316, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products" which sets forth requirements for the manufacture and installation of glass-fiber-reinforced plastic underground storage tanks for petroleum products and a copy of

which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(ii) Underwriter's Laboratories of Canada CAN4-S615-M83, "Standard for Reinforced Plastic Underground Tanks for Petroleum Products" which sets forth requirements for the manufacture and installation of horizontal reinforced plastic underground tanks for petroleum products and a copy of which may be obtained from Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9; and

(iii) American Society of Testing and Materials Standard D4021-86, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks" which sets forth design standards for FRP UST tanks and a copy of which may be obtained from The American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.

(g) The department hereby adopts and incorporates by reference:

(i) Steel Tank Institute "Specification for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks" which sets forth design and installation standards of cathodically protected steel underground storage tanks and a copy of which may be obtained from Steel Tank Institute, 728 Anthony Trail, Northbrook, IL 60062, (312) 498-1980;

(ii) Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks" which sets forth design standards for cathodically protected steel underground storage tanks and a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(iii) Underwriters Laboratories of Canada CAN4-S603-M85, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," and CAN4-5603.1-M85, "Standard for Galvanic Corrosion Protection Systems for Underground Tanks for Flammable and Combustible Liquids," and CAN4-S631-M84, "Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems" which sets forth design standards for cathodically protected steel underground storage tanks and a copy of which may be obtained from Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9; and

(iv) National Association of Corrosion Engineers Standard RP0285-2002, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection," a copy of which may be obtained from NACE, International, PO Box 201009, Houston, TX 77216-1009, (281) 228-6200 and Underwriters Laboratories Standard 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids" which sets forth design standards for

cathodically protected steel underground storage tanks, a copy of which may be obtained from Underwriters Laboratory, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709.

(h) The department hereby adopts and incorporates by reference:

(i) Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks" which sets forth requirements for corrosion protection systems for underground storage tanks and a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709; and

(ii) The Association for Composite Tanks ACT-100, "Specification for the Fabrication of FRP Clad Underground Storage Tanks" which sets forth a minimum consensus standard for the fabrication of FRP clad/composite tanks and a copy of which may be obtained from The Association for Composite Tanks, 108 N. State Street, Suite 720, Chicago, IL 60602.

(i) The department hereby adopts and incorporates by reference:

(i) Underwriters Laboratories Subject 971, "UL Listed Non-Metal Pipe" which sets forth design standards for fiberglass reinforced plastic pipe and a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(ii) Underwriters Laboratories Standard 567, "Pipe Connectors for Flammable and Combustible and LP Gas" which sets forth manufacture and installation standards for pipe connectors and a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(iii) Underwriters Laboratories of Canada Guide ULC-107, "Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids" which sets forth requirements of manufacture and installation of fiberglass reinforced plastic pipe and fittings and a copy of which may be obtained from Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9; and

(iv) Underwriters Laboratories of Canada Standard CAN 4-S633-M81, "Flexible Underground Hose Connectors" which sets forth requirements for flexible underground hose connectors for petroleum products and a copy of which may be obtained from Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9.

(j) The department hereby adopts and incorporates by reference:

(i) "Uniform Fire Code", article 79, "Flammable and Combustible Liquids" (1997 edition) which sets forth the fire protection requirements where flammable and combustible liquids

are stored or dispensed, and a copy of which may be obtained from Uniform Fire Code Association, 1260 Lake Boulevard, Suite 250, Davis, CA 95616, (888) 785-3473;

(ii) American Petroleum Institute Recommended Practice 1615 "Installation of Underground Petroleum Storage Systems" (5th edition, revised March 1996) which sets forth requirements for sound installation of UST systems, and a copy of which may be obtained from Global Engineering Documents, 15 Inverness Way East, M/S C303B, Englewood, CO 80112-5776, (303) 397-7956;

(iii) American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems" which sets forth the cathodic protection standards for UST systems and a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375; and

(iv) National Association of Corrosion Engineers RP0169-96, "Control of External Corrosion on Underground or Submerged Metallic Piping Systems" which sets forth practices for the control of external corrosion or buried or submerged metallic piping systems, and a copy of which may be obtained from NACE, International, PO Box 201009, Houston, TX 77216-1009, (281) 228-6200.

(k) The department hereby adopts and incorporates by reference:

(i) American Petroleum Institute Recommended Practice 1615, "Installation of Underground Petroleum Storage Systems" (5th edition, revised March 1996) which sets forth proper installation procedures for UST systems, a copy of which may be obtained from Global Engineering Documents, 15 Inverness Way East, M/S C303B, Englewood, CO 80112-5776, (303) 397-7956;

(ii) Petroleum Equipment Institute Publication RP100, "Recommended Practices for Installation of Underground Liquid Storage Systems" (revised 2000) which sets forth proper installation procedures for UST systems, a copy of which may be obtained from Petroleum Equipment Institute, PO Box 2380, Tulsa, OK 74101, (918) 494-9696; and

(iii) American National Standards Institute Standard B31.3, "Petroleum Refinery Piping," and American National Standards Institute Standard B31.4 "Liquid Petroleum Transportation Piping System" which sets forth proper installation and design standards for piping of an UST system and a copy of which may be obtained from The American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017. (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 1989 MAR p. 1912, Eff. 11/23/89; TRANS, from DHES, 1995 MAR p. 2259; AMD, 2003 MAR p. 1079, Eff. 5/23/03.)

17.56.202 UPGRADING OF EXISTING UST SYSTEMS (1) No later than December 22, 1998, all existing UST systems must comply with one of the following requirements:

(a) new UST system performance standards under ARM 17.56.201;

(b) the upgrading requirements in (2) through (4); or

(c) closure requirements under subchapter 7, including applicable requirements for corrective action under subchapter 6.

(2) Steel tanks must be upgraded to meet any one of the following requirements in accordance with all of the standards adopted by reference in (5):

(a) a tank may be upgraded by internal lining if:

(i) the lining is installed in accordance with the requirements of ARM 17.56.304, and

(ii) within 10 years after lining, and every five years thereafter, the lined tank is internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications.

(b) a tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of ARM 17.56.201(1)(a)(ii)(B), (C) and (D) and the integrity of the tank is ensured using one of the following methods:

(i) the tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system; or

(ii) the tank has been installed for less than 10 years and is monitored monthly for releases in accordance with ARM 17.56.407(1)(d) through (g); or

(iii) the tank has been installed for less than 10 years and is assessed for corrosion holes by conducting two tightness tests that meet the requirements of ARM 17.56.407(1)(c). The first tightness test must be conducted prior to installing the cathodic protection system. The second tightness test must be conducted between three and six months following the first operation of the cathodic protection system.

(c) A tank may be upgraded by both internal lining and cathodic protection if:

(i) the lining is installed in accordance with the requirements of ARM 17.56.304; and

(ii) the cathodic protection system meets the requirements of ARM 17.56.201(1)(a)(ii)(B), (C) and (D).

(3) Metal piping that may contain regulated substances, including vent lines and fill lines, and is in contact with the ground, must be cathodically protected in accordance with all of the standards adopted by reference in ARM 17.56.201(1)(j) and must meet the requirements of ARM 17.56.201(1)(b)(ii)(B), (C) and (D).

(4) To prevent spilling and overfilling associated with product transfer to the UST system, all existing UST systems must comply with new UST system spill and overfill prevention equipment requirements specified in ARM 17.56.201(1)(c).

(5) The department hereby adopts and incorporates by reference:

(a) American Petroleum Institute Publication 1631, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks" which sets forth repair and lining of standards for UST systems and a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375;

(b) National Leak Prevention Association Standard 631, "Spill Prevention, Minimum 10 Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection" which sets forth repair and lining standards for UST systems and a copy of which may be obtained from National Leak Prevention Association, 7685 Sields Ertel Road, Cincinnati, OH 45241, (800) 543-1838;

(c) National Association of Corrosion Engineers Standard RP0285-2002, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection" which sets forth cathodic protection standards for buried or submerged metallic liquid storage systems, a copy of which may be obtained from NACE, International, PO Box 201009, Houston, TX 77216-1009, (281) 228-6200; and

(d) American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems" which sets forth cathodic protection standards for UST systems and a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375. (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 1989 MAR p. 1912, Eff. 11/23/89; TRANS, from DHES, 1995 MAR p. 2259; AMD, 2003 MAR p. 1079, Eff. 5/23/03.)

17.56.203 ADDITIONAL PERFORMANCE STANDARDS FOR NEW UNDERGROUND PIPING CONNECTED TO ABOVEGROUND TANKS OR TO UNDERGROUND TANKS NOT LOCATED AT A FARM OR RESIDENCE WITH A CAPACITY OF 1100 GALLONS OR LESS USED TO STORE HEATING OIL

(1) Primary underground piping connected to above ground tanks or to underground tanks with a capacity of 660 gallons or less used exclusively to store heating oil for consumptive use on the premises where stored may be constructed of copper provided that the piping is enclosed in secondary containment consistent with these rules.

(2) In addition to cathodically protected steel or non-metallic pipe listed for use with petroleum products and/or motor fuels, schedule 40 or greater PVC pipe and fittings may be used to provide secondary containment for heating oil tank systems subject to this rule provided that only adhesives resistant to petroleum products are used to bond PVC joints.

(3) If liquid or vapor sensors are not used to monitor the interstitial space for a release, the piping system must be installed so that any liquid released into the interstitial space will not move more than 20 feet before being visually detected in a sump or standpipe. (History: 75-10-405, 75-11-302, MCA; IMP, 75-10-405, 75-11-302, MCA; NEW, 1995 MAR p. 2488, Eff. 11/23/95; TRANS, from DHES, 1995 MAR p. 2259.)

Rules 17.56.204 through 17.56.220 reserved

17.56.221 ISSUANCE OF COMPLIANCE TAGS AND CERTIFICATES IS REPEALED (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 1998 MAR p. 3108, Eff. 11/20/98; AMD, 2002 MAR p. 1477, Eff. 5/17/02; AMD, 2003 MAR p. 1079, Eff. 5/23/03; REP, 2003 MAR p. 2759, Eff. 12/12/03.)